

CLAIMS

1. A structure of a fuel cell stack comprising a plurality of cells each formed by interposing an MEA including an electrolyte membrane, a catalyst layer and a diffusion layer between two separators, each of the cells having a power generation region in which power is generated and a non-power generation region in which power is not generated, characterized in that,

an adhesive layer is provided between the separators in at least one of the cells, wherein

the non-power generation region includes at least one of:

(i) a region where the electrolyte membrane is located between the separators, and a portion of the adhesive layer is provided between the electrolyte membrane and one of the separators, and

(ii) another region where the electrolyte membrane is not located and another portion of the adhesive layer is provided between the separators.

2. The structure of the fuel cell stack according to claim 1, characterized in that the adjacent cells sandwich another adhesive layer.

3. The fuel cell stack structure according to claim 1 or 2, characterized in that the adhesive layer has a Young's modulus of at most 100 MPa.

4. The fuel cell stack structure according to claim 3, characterized in that the Young's modulus of the adhesive layer is within a range of 50 MPa to 30 MPa.

5. The fuel cell stack structure according to claim 1 or 2, characterized in that the adhesive layer has a thickness of 50 µm to 150 µm.

6. The structure of the fuel cell stack according to claim 1 or 2, characterized in

that a rigid spacer is provided in the adhesive layer.

7. The fuel cell stack structure according to claim 6, characterized in that the adhesive layer has a thickness that allows the adhesive layer to have a Young's modulus of at most 100 MPa even if the hard spacer is provided in the adhesive layer.

8. The fuel cell stack structure according to claim 1, characterized in that a plurality of multi-cell modules each formed by stacking a plurality of said cells are linearly arranged in a cell stacking direction, and that a bead gasket is provided as a seal between the multi-cell modules, and that a separator of an end cell of a multi-cell module which contacts the bead gasket has a greater planar rigidity than a separator of a central cell of the multi-cell module.

9. The fuel cell stack structure according to claim 8, characterized in that the planar rigidity of the separator of the end cell of the multi-cell module is made greater than the planar rigidity of the separator of the central cell by placing a generally flat plate on the separator of the end cell.

10. The fuel cell stack structure according to claim 1, characterized in that only the adhesive layer is provided between the two separators.

11. The structure of the fuel cell stack according to claim 1, characterized in that the adhesive layer is provided between the separators in the entire non-power generation region.

12. The structure of the fuel cell stack according to claim 1, characterized in that the adhesive layer contains rigid beads each of which has a diameter equal to or smaller than a thickness of the adhesive layer.